

Association for Information Systems AIS Electronic Library (AISeL)

AMCIS 2010 Proceedings

Americas Conference on Information Systems
(AMCIS)

8-2010

Who Says Professionals Are Ethical? A Cross-sectional Analysis of Ethical Decision Making, Attitudes and Action

Richard A.M. Schilhavy
University of North Carolina at Greensboro, raschilh@uncg.edu

Ruth C. King
University of North Carolina at Greensboro, rcking@uncg.edu

Follow this and additional works at: <http://aisel.aisnet.org/amcis2010>

Recommended Citation

Schilhavy, Richard A.M. and King, Ruth C., "Who Says Professionals Are Ethical? A Cross-sectional Analysis of Ethical Decision Making, Attitudes and Action" (2010). *AMCIS 2010 Proceedings*. 568.
<http://aisel.aisnet.org/amcis2010/568>

This material is brought to you by the Americas Conference on Information Systems (AMCIS) at AIS Electronic Library (AISeL). It has been accepted for inclusion in AMCIS 2010 Proceedings by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact elibrary@aisnet.org.

Who Says Professionals Are Ethical? A Cross-sectional Analysis of Ethical Decision Making, Attitudes and Action

Richard A. M. Schilhavy

University of North Carolina at Greensboro

raschilh@uncg.edu

Ruth C. King

University of North Carolina at Greensboro

rcking@uncg.edu

ABSTRACT

This study examines how different groups (students, full-time employees and IT professionals) respond to ethical IT decisions. Each group operates within a particular ethical work climate, socializing ethical and unethical, professional and or unprofessional behaviors facing ethical IT dilemmas. Two-hundred and forty respondents across three groups assessed two vignettes depicting ethical IT dilemmas, one of a programmer hacking into bank software and another of an employee using computer equipment for personal work. The results suggest that for students and IT professionals, levels of professionalism was linked to ethical and whistleblowing behavior, but this relationship was absent for other non-IT employees regardless of the ethical dilemma. In addition, we find overwhelming support for the link between ethical work climates involving laws, rules, and codes and levels of professionalism for all groups, but other work climates were only salient for non-IT professionals.

Keywords

IT professionals, professionalism, ethics, ethical decision-making, ethical work climate, Machiavellianism

INTRODUCTION

Organizations often fall victim to ethical oversights not due to systematic problems with business processes, or a cultural problem upholding amoral values, but due to the immoral behaviors of select few individuals. Unethical information technology (IT) behavior may lead to severe consequences in the workplace. Inappropriate and unethical use of IT is a prominent concern for managers that are accountable for their employee's workplace behavior, having significant impacts for organizations beyond merely a decrease in productivity. Employees with access to IT and sensitive information—IT professionals in particular—are inundated with opportunities to engage in unethical behavior (Vitell & Davis, 1990). Consequentially, concerns about unethical IT behavior have drawn the attention of IS researchers (Haines & Leonard, 2007; Leonard, Cronan, & Kreie, 2004; Moores & Chang, 2006).

Despite the increased importance of IT ethics research, education, and training, organizations cannot rely on the IT professional (or the IT professional institution) to promote and maintain ethical IT behavior. Smith and McKeen (2003) lament the lack of professionalism (as a broad set of traits, soft skills and moral standards) in the IT professional community, which colleges and universities do not explicitly teach. Furthermore, IT lacks many of the traditional criteria (e.g. enforceable code of conduct, professional authority, etc.) that other professions such as medicine, law, and accounting maintain. Nevertheless, with this heightened access to critical systems and sensitive information, managers, academics and practitioners have expectations of heightened professional accountability (Davison, 2000); in other words, an IT professional should "know better." Not only does IT influence the nature of ethical situations and individual's judgments and intentions towards those situations (Spruill & Kiesler, 1991), the association of a student or professional in IT or non-IT domains influences moral judgments and behaviors (Paradice, 1990; Paradice & Dejoie, 1991). Therefore, in this study we investigate how differences in professionalism of IT students, IT professionals, and non-IT professionals influence ethical IT behavior and whistleblowing intentions, and how one's organizational environment through ethical work climates (EWC) influencing the professionalism of organizational actors.

Professionalism and the IT Professional

The IT profession represents a unique intersection between management professions and technical professions, requiring both personal capabilities to manage knowledge workers, and technical knowledge and expertise to solve technology problems. However, professionalism has traditionally been poorly defined and measured, using job characteristics, work behavior, and professional commitment as different measures in different studies (Berman, 1999)—the IT profession is no exception. Professionalism is a complex, multi-dimensional construct comprised of five dimensions, including (1) autonomy, (2) maintenance of collegiate standards, (3) professional ethics, (4) professional commitment, and (5) professional identification (Bartol, 1979; Berman, 1999; Kerr, Von Glinow, & Schriesheim, 1977).

Professionalism itself can be viewed as a form of socialization (S. S. Liu, Ngo, & Tsang, 2003), where individuals seeking to exhibit “professional” behavior must conform to prevailing group norms, internalizing moral rules and norms in the process. Professional socialization may be considered a form of occupational or organizational socialization (Auster, 1996), where an employee learns the necessary skills, norms and values necessary to conduct themselves in an occupational environment. Professional socialization effects individual values and norms, and therefore, moral values and ethical norms. From an ethical perspective, the strong socialization forces of professionalism are both good and bad, speaking both ethically and pragmatically, as professional associations, although unlikely, may institutionalize unethical behavior.

Cappel and Windsor (1998) found that IT students and professionals both had difficulty identifying ethical issues and acting accordingly, and that consensus even within student and professional groups on *any* ethical IT issue was difficult to achieve. Nevertheless, significant differences were found not only in the manner IT students and professional *acted*, but also in the moral judgments supporting those actions (Cappel & Windsor, 1998). Therefore, while professional socialization may drive ethical IT behavior, individual differences between people in the same field and profession (IT) may be an insufficient bond to predict ethical IT behavior.

Hypothesis 1A: Higher levels of professionalism will *increase* ethical IT behavior intention.

Hypothesis 1B: Higher levels of professionalism will *increase* ethical IT whistleblowing intention.

Machiavellianism

Professionalism alone may not account for the multitude of influence on moral reasoning and action involving IT. Amoral reasoning may contribute to markedly different moral attitudes and judgments that influence ethical intention and behavior. While perceiving the ethical component of a situation, individuals may show a lack of concern and empathy for ethical values and moral norms.

To measure the degree of amorality, a construct inspired by the writing of Machiavelli is used. The Machiavellianism construct measures the degree an individual is predisposed toward employing deceptive and manipulative behaviors in achieve goals (Christie & Geis, 1970). The Machiavellianism construct is well established in social psychological literature (McHoskey, Worzel, & Szyarto, 1998; Wilson, Near, & Miller, 1996, 1998) and has been used in an IT professional context (C. C. Liu, 2003; Winter, Stylianou, & Giacalone, 2004). An overarching pattern for those exhibiting high Machiavellianism scores is a general disregard for the negative consequences befalling others due to their unethical actions (i.e. a lack of empathy) and towards moral conventions of groups, organizations, or even cultures. Therefore, we hypothesize the following:

Hypothesis 2A: Higher levels of Machiavellianism will *decrease* ethical IT behavior intention.

Hypothesis 2B: Higher levels of Machiavellianism will *decrease* ethical IT whistleblowing intention.

Ethical Work Climates

Ethical work climates (EWC) have a profound impact on moral norms and influence the ethical decision-making processes of managers and employees in organizations (Deshpande, 1996; Fritzsche, 2000; Victor & Cullen, 1987, 1988). EWC is a trait-based, perceptual measure of how ethical behaviors and decisions are justified and governed in an organization. The link between ethical work climates and ethical or unethical behavior is well supported (Deshpande, 1996; Deshpande, George, & Joseph, 2000; Fritzsche, 2000). Early instantiations of the EWC construct called for nine dimensions (Victor & Cullen, 1987, 1988); however, recent literature finds support for a more parsimonious, five dimension model (Martin & Cullen, 2006; Peterson, 2002).

EWCs appear to be situational, insofar as prevailing ethical climates, such as egoist and benevolent, effect only particular ethical behaviors (Peterson, 2002). The egoism climate is related to unethical behavior, while benevolent and principled climates are related to ethical behaviors (Peterson, 2002). Similarly, people working under a caring climate reported a positive relationship between manager’s success and ethical behavior, while a negative relationship under the instrumental climate (Deshpande, 1996). Fritzsche (2000) also finds that the reported EWCs of respondents were significantly correlated with a variety of ethical and unethical decision making behavior. EWCs may bias people towards uncharacteristic moral reasoning if the fit between organizational climate and personal moral reasoning is weak or aversive, or reinforce moral reasoning if the fit between organizational climate and personal moral reasoning is strong.

Hypothesis 3A: The caring work climate will have a positive impact on levels of professionalism, and a negative impact on levels of Machiavellianism.

Hypothesis 3B: The laws, codes, and rules work climates will have a positive impact on levels of professionalism.

Hypothesis 3C: The instrumental work climate will have a negative effect on levels of professionalism, and a positive effect on levels of Machiavellianism.

Ethical Decision Making and Action

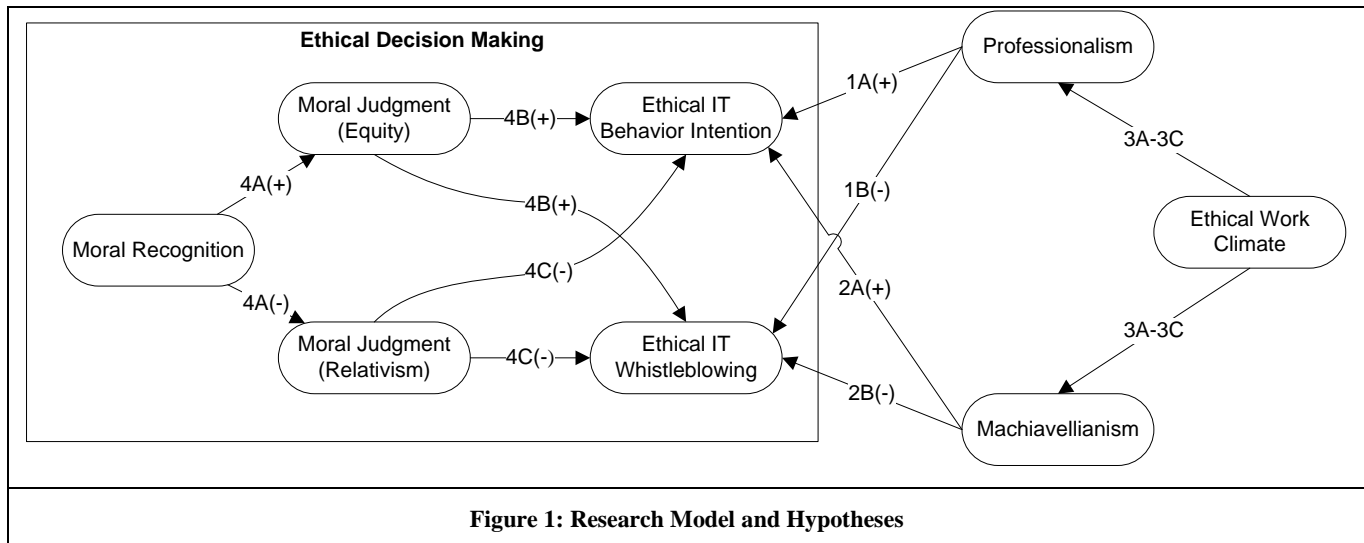
The ethical decision making (EDM) model is a four-component cognitive process (Rest, 1986; Rest, Cooper, Coder, Masanz, & Anderson, 1974). The first stage involves awareness that a situation is indeed an ethical problem. During the second stage, moral actors use decision-making heuristics to form judgments of the relative morality of possible behaviors. The third (intention) and fourth (behavior) stages resemble a standard intention-behavior model (Ajzen, 1991). Based upon the judgments formed of the ethical dilemma and potential moral behaviors, individuals form intentions to behave ethically or unethically.

The four-component model has shown significant structural relations for IT and non-IT related ethical behaviors and whistleblowing intentions. Several authors have used the four-component model to investigate the effects of some of these situational factors of ethical IT dilemmas (Banerjee, Cronan, & Jones, 1998; Haines & Leonard, 2007; Leonard, et al., 2004). In these studies, the authors employ several vignettes depicting ethical IT dilemmas that elicit responses on moral judgments, attitudes, and intentions toward ethical behavior. Regarding the intention to report, or whistleblowing behavior intention, Brabeck (1984) found that higher levels of moral reasoning are often associated with a tendency toward whistleblowing behavior.

Hypothesis 4A: Higher levels of moral recognition will *increase* moral equity judgments, but decrease moral relativism judgments.

Hypothesis 4B: Higher levels of moral equity judgments will *increase* ethical IT behavior and whistleblowing.

Hypothesis 4C: Higher levels of moral relativism judgments will *decrease* ethical IT behavior and whistleblowing.



RESEARCH METHODOLOGY

Sample

A total of 240 responses were collected from graduate students enrolled in information system courses. The graduate students reported their employment status (full-time employee or full-time student), and the field that they are employed. The graduate students who responded with full-time employment were coded again as to whether the employment was IT-related ($n = 63$, 26.3%) or not ($n = 117$, 48.8%). Each of the respondents were given a survey containing questions assessing levels of professionalism and Machiavellianism, ethical work climate and three vignettes depicting unethical IT dilemma. Descriptive statistics of the sample are presented in Table 1.

Demographic	Category	Frequency (n)	Percentage
Gender	Male	132	55%

	Female	108	45%
Age	18-25	59	24.6%
	26-35	90	37.5%
	36-45	44	18.3%
	46-55	31	12.9%
	55+	16	6.7%
Education	High School	9	3.8%
	Some College	57	23.8%
	Bachelors'	89	37.1%
	Master's	76	31.7%
	Doctorate	9	3.8%
IT Courses	1 - 2	59	24.6%
	3 - 5	80	33.3%
	6 - 10	30	12.5%
	10 or more	47	19.6%
	None	24	10.0%
Programming Experience	Much experience	25	10.4%
	Experienced	33	13.8%
	Some experience	78	32.5%
	Little experience	47	19.6%
	No experience	57	23.8%
Group	Full-Time Graduate Student	60	25.0%
	Full-Time Employee	117	48.8%
	Full-Time IT Employee	63	26.3%

Table 1: Sample Characteristics (n = 240)

Vignettes

The study used multiple vignettes depicting ethical IT dilemmas to evaluate differences between the three groups (students, IT and non-IT professionals). Similar to other studies, the responses from the vignettes were combined (Banerjee, et al., 1998; Haines & Leonard, 2007; Leonard, et al., 2004). The vignettes varied in terms of their moral intensity and equivocality in order to capture the entire range of moral judgment and intention responses.

Measures

To measure the degree of Machiavellianism the Short Form Mach IV Test was used, which is comprised of five items clustered into two factors: tactics and perspective. *Tactics* refers to the admission of Machiavellian behaviors and strategies, such as deceit and coercion. *Perspective* refers to perceptions about people and the world, such as people act morally more often than not. The Short Form Mach IV Test is based on an extensive factor analysis of 810 university students (Christie & Geis, 1970).

Professionalism is measured using a 20-item professionalism scale (S. S. Liu, et al., 2003). A confirmatory factor analysis (CFA) reveals that two items loaded unreliably against the sub-construct and the overarching professionalism construct,

which were subsequently dropped. Similar to Liu and others (2003), the factors loaded similarly against the sub-constructs and the overall professionalism construct; therefore, a composite score was calculated using the remaining 16 items.

Ethical work climate (EWC) was measured using the ethical work climate questionnaire (EWCQ) originally developed by Victor and Cullen (1987, 1988) and extended by other authors (Cullen, Parboteeah, & Victor, 2003; Martin & Cullen, 2006). The EWCQ consists of 26-items across five organizational climates determined through extensive meta-analysis (Martin & Cullen, 2006). A CFA was conducted in SPSS 17 using principal components analysis (PCA) on the EWC items to determine the salient organizational climates within the sample (Cullen, et al., 2003; Martin & Cullen, 2006; Victor & Cullen, 1987, 1988). Based on the factor loadings and reliability of the resulting four ethical work climates, two items were dropped from the model since they load on multiple different climates.

The multi-dimensional ethics scale (MES) was used to assess the type of moral reasoning employed due to the specificity of the IT context and varying intensity of the vignettes (Reidenbach & Robin, 1988, 1990). A scale of 6-items was used to measure the application of two moral reasoning dimensions: *moral equity* (3 items) and *moral relativism* (3 items). A list of the constructs and their sources that were used to develop the instruments is presented in Table 2.

Construct	Source	Description
Professionalism	Liu et al. 2003	Professionalism Scale 20-items, 5-point scale
Ethical Work Climate	Victor & Cullen 1988	Ethical Work Climate Questionnaire (EWCQ), 26-items, 6-point scale
Moral Judgments	Brady & Wheeler 1996 Reidenbach & Robin 1990	Multi-dimensional Ethics Scale (MES) 6-items, 5-point scale
Intention: Ethical IT Behavior	Banerjee et al. 1998	Intention to Behave Ethically and Behave Ethically Items, 2-items, 5-point scale
Intention: Report	Winter et al. 2004 (Adapted)	Intention to Report and Report Behavior Items, 2-items, 5-point scale

Table 2: Description and Sources of Construct Measures

RESULTS

The results of the study were analyzed use SmartPLS 2.0 M3 (Ringle, Wende, & Will, 2005).

Assessment of Measurement Model

Additional tests were conducted to assess the convergent validity and measurement reliability by computing the Cronbach's alphas, composite reliabilities (CR), minimum item-to-total correlations and average variance extracted (AVE) (Table 3). All scores exceeded accepted criteria (α : 0.70; CR: 0.70; AVE: 0.50; *minimum item-to-total correlations*: 0.40), with exception of the alpha of the three-item Machiavellian tactics measure. Nevertheless, the CR exceeds the sufficient criteria (CR = 0.80).

	Number of Items	Cronbach's α	CR	AVE	Minimum Item-to-Total Correlation
EWC Caring	4	0.86	0.90	0.70	0.81
EWC Independence	4	0.71	0.81	0.51	0.65
EWC Instrumental	4	0.75	0.83	0.49	0.59
EWC Laws, Codes, Rules	11	0.94	0.95	0.62	0.71
MACH High Perception	2	0.72	0.88	0.79	0.66
MACH High Tactics	3	0.64	0.82	0.60	0.49
PRO Knowledge	3	0.87	0.92	0.80	0.83
PRO Independence	3	0.73	0.84	0.65	0.57
PRO Status	4	0.76	0.85	0.60	0.82

PRO Help	4	0.92	0.95	0.82	0.89
PRO Commitment	4	0.77	0.87	0.65	0.89
Moral Recognition	4	0.96	0.97	0.89	0.93
Moral Attitude	3	0.91	0.95	0.85	0.91
Moral Equity	3	0.93	0.96	0.88	0.92
Moral Relativism	3	0.87	0.92	0.79	0.81
Behavior Intent	2	0.90	0.95	0.91	0.95
Behavior Whistleblowing	2	0.92	0.96	0.93	0.96

Table 3: Reliability and Convergent Validity

We further tested for discriminant validity by comparing the square roots of average variance extracted (SAVE) of each construct with the correlations among the construct and all other constructs in the model. The results confirmed discriminant validity as all SAVEs (shown in the diagonal) are greater than the values of the correlations between the construct and all other constructs (Table 4) (Chin, Marcolin, & Newsted, 2003). Thus, the measurements demonstrate satisfactory levels of discriminant validity.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
EWC Caring	1	0.838																		
EWC Independence	2	0.234	0.715																	
EWC Instrumental	3	0.059	0.319	0.702																
EWC Laws, Codes, Rules	4	0.664	0.099	0.071	0.786															
MACH High Perception	5	0.075	0.263	0.406	-0.013	0.889														
MACH High Tactics	6	0.060	0.246	0.441	0.031	0.611	0.775													
MACH Low Perception	7	-0.233	0.031	0.105	-0.267	0.122	0.272	1.000												
MACH Low Tactics	8	-0.233	-0.006	0.047	-0.327	0.137	0.154	0.510	0.789											
PRO Knowledge	9	0.271	0.061	0.032	0.499	-0.111	0.045	-0.373	-0.375	0.892										
PRO Independence	10	0.355	0.181	-0.019	0.499	-0.127	-0.131	-0.416	-0.441	0.652	0.806									
PRO Status	11	0.389	0.168	0.109	0.532	0.056	0.127	-0.363	-0.367	0.670	0.684	0.775								
PRO Help	12	0.350	0.075	0.080	0.531	-0.060	-0.013	-0.460	-0.456	0.740	0.714	0.762	0.903							
PRO Commitment	13	0.384	0.077	0.032	0.612	-0.077	-0.053	-0.437	-0.496	0.715	0.721	0.765	0.859	0.805						
Moral Recognition	14	0.067	0.008	0.025	0.074	0.006	0.046	-0.030	0.029	0.114	0.090	0.125	0.081	0.101	0.943					
Moral Attitude	15	0.187	0.046	0.024	0.326	0.004	-0.018	-0.189	-0.232	0.235	0.262	0.274	0.274	0.308	-0.454	0.924				
Moral Equity	16	0.032	0.020	0.329	-0.054	-0.081	-0.201	-0.232	0.268	0.278	0.268	0.295	0.321	-0.473	0.885	0.179	0.940			
Moral Relativism	17	-0.433	0.050	-0.488	0.001	0.069	-0.009	0.127	0.179	0.025	0.049	0.033	-0.011	0.022	-0.012	-0.022	0.636	0.891		
Behavior Intent	18	0.659	0.207	0.687	-0.031	-0.054	0.349	-0.125	-0.140	-0.188	-0.248	0.246	0.237	0.200	0.247	0.304	-0.391	-0.389	0.954	
Behavior Whistleblowing	19	0.470	0.119	0.488	0.010	0.086	0.407	0.109	0.018	-0.012	0.017	-0.001	-0.136	-0.063	-0.071	-0.082	-0.036	-0.570	-0.441	0.962
Table 4: Discriminant Validity																				

Table 4: Discriminant Validity

Assessment of Structural Model

Structural Model for Graduate Students (Figure 2)

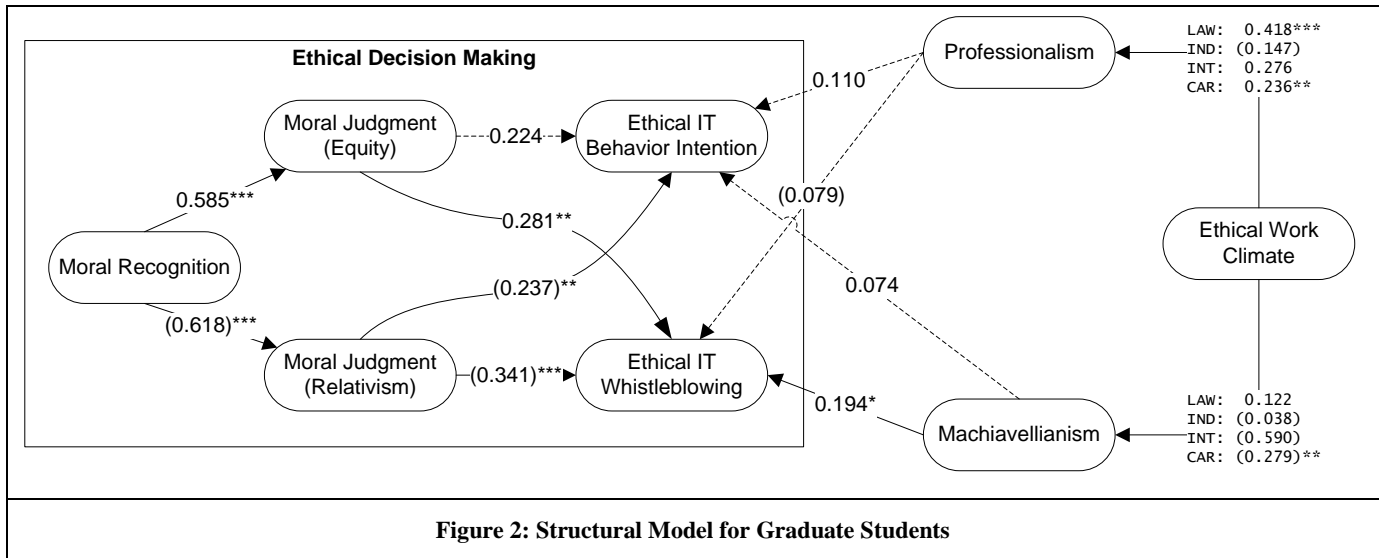
Hypothesis 1A and *1B* predict that higher levels of professionalism increases both ethical IT behavior and whistleblowing intention; however, the results show no support for these hypotheses. Students' ethical and whistleblowing behavior is unaffected by professional attitudes.

Hypothesis 2A and *2B* predict that Machiavellianism will decrease both the intention to behave ethically and report unethical behavior. The results are mixed, showing strong and significant effect on whistleblowing intention ($\beta = 0.194$, $p < 0.05$) supporting hypothesis *2B*. This suggests that students with higher Machiavellian attitudes are eager to report the unethical behavior of others, but unwilling to hold themselves to the same standard.

Hypothesis 3A–3C predict the effect of EWC on professionalism and Machiavellianism. The results only support some of the relationships. Laws, rules and codes, and caring climates show significant effects on professionalism, while the caring climate shows significant and negative effects on Machiavellianism, thusly supporting hypotheses *3A* and *3B*. Laws, rules and codes, and caring climates show the strongest correlation with professionalism for the student group. Compared with other groups, the effect of the laws, rules and codes climate on professionalism is consistent; however, the caring ethical

work climate is unique for the student group. The importance of the caring ethical work climate is continued regarding the effects on Machiavellianism, where perceptions of caring work climates are negatively related to levels of Machiavellianism.

Hypotheses 4A relating moral recognition to moral equity ($\beta = 0.585$, $p < 0.001$) and moral relativism judgments ($\beta = -0.618$, $p < 0.001$) are fully supported. *Hypothesis 4B* predicting the use of moral equity judgment will increase the ethical behavior ($\beta = -0.224$) and whistleblowing intention ($\beta = 0.281$, $p < 0.01$) is partially supported. *Hypothesis 4C* predicting that moral relativism judgments will decrease the ethical behavior ($\beta = -0.237$, $p < 0.01$) and whistleblowing intention ($\beta = -0.341$, $p < 0.001$) is fully supported. These results are largely expected; however, the lack of a significant relationship between moral equity judgments and ethical behavior is surprising, suggesting the students do not perceive a moral duty to behave ethically (or not unethically) in IT-related ethical dilemmas.



Note: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

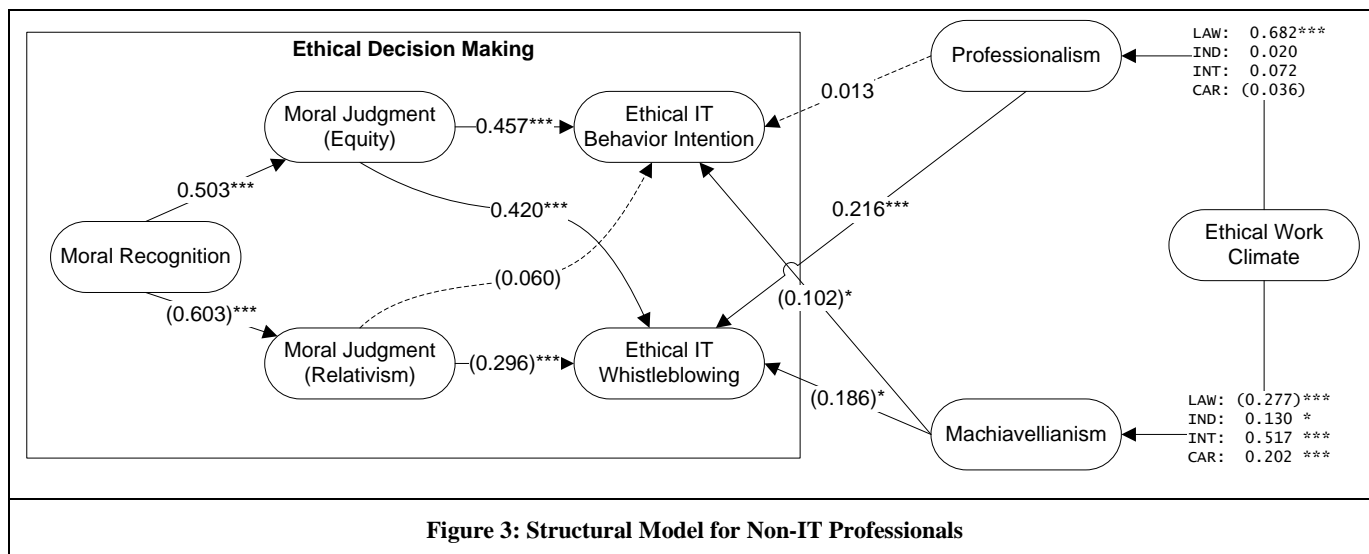
Structural Model for Non-IT Professionals (Figure 3)

Hypothesis 1A and *1B* predict that higher levels of professionalism increase both ethical IT behavior and whistleblowing intention. The results show partial support. While professionalism has no effect on ethical IT behavior intention, professionalism is significantly related to whistleblowing intention ($\beta = 0.216$, $p < 0.001$), thus suggesting non-IT professionals with higher levels of professionalism are more likely to engage in whistleblowing behaviors, but *not* ethical IT behavior.

Hypothesis 2A and *2B* predict that Machiavellianism will decrease both the intention to behave ethically and report unethical behavior. Both hypotheses are supported, showing a strong, significant effect on ethical behavior ($\beta = -0.102$, $p < 0.05$) and whistleblowing intention ($\beta = -0.186$, $p < 0.05$). This suggests that professionals' ethical and whistleblowing behaviors are susceptible to cynical and opportunistic attitudes.

Hypothesis 3A–3C predict the effect of EWC on professionalism and Machiavellianism for the non-IT professionals. The results only support some of relationships. Laws, rules and codes climate has significant effect on professionalism and laws, rules and codes, independence, instrumental and caring have significant effects on Machiavellianism. Therefore, while hypothesis 3A is fully supported, we found no support for hypothesis 3B and only partial support for hypothesis 3C. Unlike the student group, the non-IT professionals had a *positive* relationship between perceptions of caring work climates and Machiavellianism, suggesting that a caring work climate may be perceived as dubious, dishonest and superficial.

Hypotheses 4A relating moral recognition to moral equity ($\beta = 0.503$, $p < 0.001$) and moral relativism judgments ($\beta = -0.603$, $p < 0.001$) is fully supported. *Hypothesis 4B* predicting moral equity judgment will increase the ethical behavior ($\beta = 0.457$, $p < 0.001$) and whistleblowing intention ($\beta = 0.420$, $p < 0.001$) is also fully supported. *Hypothesis 4C* predicts moral relativism judgment will decrease the ethical behavior and whistleblowing intention. However, this hypothesis is unsupported.



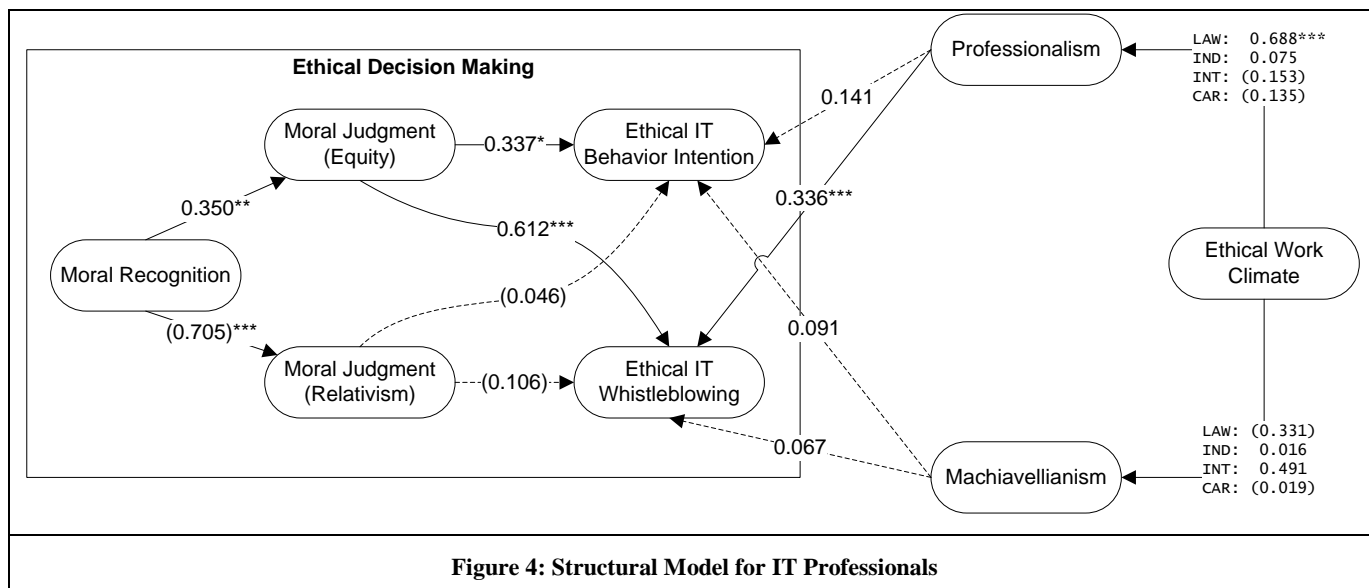
Structural Model for IT Professionals (Figure 4)

Hypothesis 1A and *1B* predict that higher levels of professionalism increases both ethical IT behavior ($\beta = 0.141$) and whistleblowing intention ($\beta = 0.336$, $p < 0.001$). The results show partial support for these hypotheses, suggesting that strong professional attitudes *do not* encourage ethical IT behavior; however, professionalism does encourage whistleblowing behavior.

Hypothesis 2A and *2B* predict that Machiavellianism will decrease both the intention to behave ethically and to report unethical behavior. Both hypotheses are not supported. These results have mixed implications, since ethical and whistleblowing behaviors are neither encouraged by weak Machiavellian attitudes nor stifled by strong Machiavellian attitudes.

Hypothesis 3A–3C predict the effect of EWC on professionalism and Machiavellianism. The results only support some of the relationships. Laws, rules and codes show significant effect on professionalism (supporting hypothesis 3A) but none of the ethical work climates have significant effects on Machiavellianism.

Hypotheses 4A relating moral recognition to moral equity judgment ($\beta = 0.350$, $p < 0.01$) and moral relativism judgment ($\beta = -0.705$, $p < 0.001$) is fully supported. *Hypothesis 4B* predicting the use of moral equity judgment will increase the ethical behavior ($\beta = 0.337$, $p < 0.01$) and whistleblowing intention ($\beta = 0.612$, $p < 0.001$) is also fully supported. *Hypothesis 4C* predicting the use of moral relativism judgment will decrease the ethical behavior and whistleblowing intention. However, this hypothesis is unsupported. The lack of support for relativist judgments on ethical and whistleblowing behavior suggests that IT professionals are not guided by the attitudes and opinions of others and the environment when making ethical decisions, but are likely influenced by a sense of moral duty.



DISCUSSION AND CONCLUSIONS

The differences between the student, non-IT professional and IT professional groups are startling. In the student sample, professionalism and Machiavellianism had little effect on the intention to behave ethically or report unethical behavior. However, the effects of professionalism unsurprisingly became more prevalent in professional groups, where IT professionals had an equally significant but stronger relationship between professionalism and whistleblowing intention. In addition, Machiavellian tactics and perceptions were only related to ethical IT behavior and whistleblowing intention for non-IT professionals, suggesting that the behaviors of students and IT professionals may be less influenced by a personal amorality and lack of empathy.

The structural ethical decision-making model shows some interesting changes across the three groups, particularly the salience of different moral reasoning and judgments. Moral relativistic judgments are often associated with an acceptance to others. Therefore, the findings that higher levels of moral relativism judgments are negatively associated with ethical IT behavior (only for students) and whistleblowing behavior (for students and non-IT professionals) is not surprising, suggesting that the acceptability of the behavior will lead to more frequent behavior and fewer report intentions. However, it appears IT professionals maintain professional responsibility by engaging in fewer unethical intentions and not shying away from reporting unethical behaviors. What appears is a general trend away from peer-focused morality toward principle-focused morality as one becomes socialized in not only professional groups, but IT professions in particular.

The lack of support for an increase in ethical IT behavior intention due to higher levels of professionalism is surprising, and may suggest that training soft skills and weak, unenforceable standards may be insufficient to change the ethical behavior of individuals. If unethical behavior is deemed a dire concern for the industry, the information systems and technology disciplines may serve well to consider improving not only professional and ethics education in universities and training programs, but also developing enforceable standards bodies and more rigorous codes of conduct, echoing Smith and McKeen's (2003) lament. Conversely, another explanation of the lack of relationship between professionalism and ethical behavior intention is the strength of the ethical decision making model. Individual actors may be more driven by the particular situation and the salience of different moral judgments—driven not by a sense of duty to one's profession, but by one's internal moral compass.

REFERENCES

1. Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179-221.
2. Auster, C. L. (1996). *The sociology of work: Concepts and cases*. Thousand Oaks, CA: Pine Forge.
3. Banerjee, D., Cronan, T. P., & Jones, T. W. (1998). Modeling IT ethics: A study in situational ethics. *MIS Quarterly*, 22(1), 31-60.
4. Bartol, K. M. (1979). Professionalism as a Predictor of Organizational Commitment, Role Stress, and Turnover: A Multidimensional Approach. *Academy of Management Journal*, 22(4), 815-821.

5. Berman, E. M. (1999). Professionalism among Public and Nonprofit Managers: A Comparison. *The American Review of Public Administration*, 29(2), 149-166.
6. Brabeck, M. (1984). Ethical characteristics of whistleblowers. *Journal of Research in Personality*, 18, 41-53.
7. Cappel, J. J., & Windsor, J. C. (1998). A Comparison of Ethical Decision Making: Information Systems Professionals versus Students. *The DATA BASE for Advances in Information Systems*, 29(2), 20-34.
8. Chin, W. W., Marcolin, B. L., & Newsted, P. R. (2003). A partial least squares latent variable modeling approach for measuring interaction effects: Results from a Monte Carlo simulation study and an electronic-mail emotion/adoption study. *Information Systems Research*, 14(2), 189-217.
9. Christie, R., & Geis, F. (1970). *Studies in Machiavellianism*. New York: Academic Press.
10. Cullen, J. B., Parboteeah, K. P., & Victor, B. (2003). The effects of ethical climates on organizational commitment: A two-study analysis. *Journal of Business Ethics*, 46(2), 127-141.
11. Davison, R. M. (2000). Professional Ethics in Information Systems: A Personal Perspective. *Communications of the ACM*, 3, 1-33.
12. Deshpande, S. P. (1996). Ethical Climate and the Link between Success and Ethical Behavior: An Empirical Investigation of a Non-profit Organization. *Journal of Business Ethics*, 15(3), 315-320.
13. Deshpande, S. P., George, E., & Joseph, J. (2000). Ethical climates and managerial success in russian organizations. *Journal of Business Ethics*, 23(211-217).
14. Fritzsche, D. J. (2000). Ethical Climates and the Ethical Dimension of Decision Making. *Journal of Business Ethics*, 24(2), 125-140.
15. Haines, R., & Leonard, L. N. K. (2007). Situational influences on ethical decision-making in an IT context. *Information & Management*, 44, 313-320.
16. Kerr, S., Von Glinow, M. A., & Schriesheim, K. (1977). Issues in the study of "professionals" in organizations: The case of scientists and engineers. *Organizational Behavior and Human Performance*, 18(329-345).
17. Leonard, L. N. K., Cronan, T. P., & Kreie, J. (2004). What influences IT ethical behavior intentions—planned behavior, reasoned action, perceived importance, or individual characteristics? *Information & Management*, 42, 143-158.
18. Liu, C. C. (2003). The Relationship between Machiavellianism and Ethical Computer Self-Efficacy. *Journal of Information, Technology and Society*(2), 53-64.
19. Liu, S. S., Ngo, H.-Y., & Tsang, A. W.-N. (2003). Socialized to be a Professional: A Study of the Professionalism of Accountants in Hong Kong. *International Journal of Human Resource Management*, 14(7), 1192-1205.
20. Martin, K. D., & Cullen, J. B. (2006). Continuities and Extensions of Ethical Climate Theory: A Meta-Analytic Review. *Journal of Business Ethics*, 69, 175-194.
21. McHoskey, J., Worzel, W., & Szyarto, C. (1998). Machiavellianism and psychopathy. *Journal of Personality and Social Psychology*, 74, 192-210.
22. Moores, T. T., & Chang, J. C.-J. (2006). Ethical decision making in software piracy: Initial development and test of a four-component model. *MIS Quarterly*, 30(1), 167-180.
23. Paradise, D. B. (1990). Ethical attitudes of entry-level MIS personnel. *Information & Management*, 18, 143-151.
24. Paradise, D. B., & Dejoie, R. M. (1991). The Ethical Decision-Making Processes of Information Systems Workers. *Journal of Business Ethics*, 10(1), 1-21.
25. Peterson, D. K. (2002). The Relationship between Unethical Behavior and the Dimensions of the Ethical Climate Questionnaire. *Journal of Business Ethics*, 41(4), 313-326.
26. Reidenbach, P. E., & Robin, D. P. (1988). Some initial steps toward improving the measurement of ethical evaluations of marketing activities. *Journal of Business Ethics*, 7(11), 871-880.
27. Reidenbach, P. E., & Robin, D. P. (1990). Toward the development of a multidimensional scale for improving evaluations of business ethics. *Journal of Business Ethics*, 9(8), 639-653.
28. Rest, J. R. (1986). Moral judgment, behavior, decision making, and attitudes. In J. R. Rest (Ed.), *Moral judgment, behavior, decision making, and attitudes*. New York: Praeger.
29. Rest, J. R., Cooper, D., Coder, R., Masanz, J., & Anderson, D. (1974). Judging the important issues in moral dilemmas: An objective measure of development. *Developmental Psychology*, 10(4), 491-501.
30. Ringle, C. M., Wende, S., & Will, S. (2005). SmartPLS 2.0 (M3) Beta. from <http://www.smartpls.de>
31. Smith, H. A., & McKeen, J. D. (2003). Developments in Practice XI: Developing IT Professionalism. *Communications of the Associations of Information Systems*, 12, 1-16.
32. Sproull, L., & Kiesler, S. (1991). *Connections*. Boston, MA: MIT Press.
33. Victor, B., & Cullen, J. B. (1987). A theory and measure of ethical climate in organizations. In W. C. Fredrick (Ed.), *Research in Corporate Social Performance and Policy* (pp. 51-71). Greenwich, CT: JAI Press.
34. Victor, B., & Cullen, J. B. (1988). The organizational bases of ethical work climate. *Administrative Science Quarterly*, 33(1), 101-125.

35. Vitell, S., & Davis, D. (1990). Ethical beliefs of MIS professionals: The frequency and opportunity for unethical behavior. *Journal of Business Ethics*, 9, 63-70.
36. Wilson, D., Near, D., & Miller, R. (1996). Machiavellianism: A synthesis of the evolutionary and psychological literatures. *Psychological Bulletin*, 119(2), 285-299.
37. Wilson, D., Near, D., & Miller, R. (1998). Individual differences in machiavellianism as a mix of cooperative and exploitative strategies. *Evolution and Human Behavior*, 19, 203-212.
38. Winter, S. J., Stylianou, A. C., & Giacalone, R. A. (2004). Individual Differences in the Acceptability of Unethical Information Technology Practices: The Case of Machiavellianism and Ethical Ideology. *Journal of Business Ethics*, 54, 279-301.